

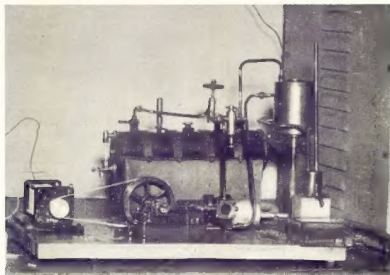
SEPTEMBER, 1961



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2.5 volts c.t., 10 amp.; 12 volts 3 amp. New. "S" Power Supply type **£3/0/0**.

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410 volts aside, 80 mA., 12.8v. at 1.25a., 5v. at 2a. 40/-.

STEP-DOWN TRANSFORMERS

230 volts to 110 volts, 1kv., **£8/10/0**.
230 volts to 110 volts, 500w., **£6/10/0**. In case.

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ADVERTISING REPRESENTATIVE:

C/o P.O. Box 36, East Melbourne,
C.2, Vic. Telephone: JA 3535.

PRINTERS:

"RICHMOND CHRONICLE,"
Shakespeare St., Richmond, E.1.
Telephone: JB 2419.

MSS. and Magazine Correspondence
should be forwarded to the Editor,
P.O. BOX 36,
EAST MELBOURNE, C.2, VIC.,
on or before the 8th of each month.

Subscription rate, in Australia and
Overseas, is 24/- per annum, in
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Wireless Institute of Australia
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WI BROADCASTS

All Amateurs are urged to keep these
frequencies clear during, and for a period
of 15 minutes after, the official Broadcasts.

VK3WI: Sundays, 1130 hours EST, simultane-
ously on 3075 Kc., 7140 Kc., and 145.0
Mc. Intrastate call-backs taken on 7050
Kc.

VK3WI: Sundays, 1030 hours EST, simultane-
ously on 3073 and 7140 Kc., 51.018 and
140.25 Mc. Intrastate hook-ups taken on
7150 Kc. Individual frequency checks
of Amateur Stations given when VK3WI
is on the air.

VK4WI: Sundays, 0800 hours EST, simultane-
ously on 7140 Kc. and 14.343 Mc.
Intrastate hook-ups taken on 7105 Kc.

VK5WI: Sundays, 0900 hours CAT, on 7140
Kc. Intrastate hook-ups taken on 7125
Kc. Frequency checks given when VK-
5WI is on the air and also by VK5MD
by arrangement.

VK6WI: Sundays at 0900 hours WAST, on
7140 Kc. Intrastate hook-ups taken on
7055 Kc.

VK7WI: Sundays at 1000 hours EST, on 7140
Kc. and 2872 Kc. Intrastate hook-ups
taken on 7115 Kc.

AMATEUR RADIO

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

Published by the Wireless Institute of Australia, Victorian Division,
Postal Address: P.O. Box 36, East Melbourne, C.2, Vic.

EDITORIAL



AMATEURS AND AUSTRALIA

IT'S a long time since the Amateur
physically manufactured the com-
ponent parts for his equipment from
the raw materials for the simple
reason that the making of such parts
requires processes and machines
unaccessible to individual people.

As the science has progressed so
the Amateur has of necessity moved
further away from manufacture and
has contented himself experimenting
with the practical application of
circuitry using manufactured com-
ponents.

The science itself has taken giant
strides ahead, making it impossible
for individuals to participate even in
many of the practical applications.
Who, for instance, could afford to
erect radio telescopes; who could
afford to indulge in multiplexing
high speed telegraphy equipment;
who, out of individual Amateurs,
could afford the modern test equip-
ment to carry out the work done in
laboratories. None! Unless he (or
she) is employed in industry or

Government instrumentalities. And
this is where the Amateur of today
is of such importance.

In industry, laboratories, broad-
casting stations, television stations
... everywhere in fact that one finds
electronics one finds Amateurs and
the "employer" derives the benefit
of his natural attribute and keen-
ness for his work. In this category
falls the defence services and else-
where in this edition of "Amateur
Radio" will be found a story of what
the Amateur can do in defence even
whilst carrying on his work in other
fields.

To say that Amateurs serve no
useful purpose is so very false be-
cause many of the highest technical
posts in the country are held by
Amateurs; it is because they were
initially Amateurs which encouraged
them to study further into the world
of electronics—a world which is
daily crying out for more and more
technical skill.

FEDERAL EXECUTIVE.

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CHANNEL MASTER

Presents two striking new concepts in . . .

AUTOMATIC ROTATOR design

features . . .

- FINER TUNING
- FLEXIBILITY
- FOOL-PROOF CONTROL BOX
- HIGHER TORQUE
- SIMPLE & MORE FUNCTIONAL DESIGN



Completely New Circuit Principle Delivers **MORE POWER . . . PERFORMANCE . . . ACCURACY**

INSTANT STOPPING ACTION

Automatic brake immediately locks the antenna in the exact position you want. Prevents coasting and wind-milling. Brake is released only when motor is energized.

● SPUR TYPE GEAR DESIGN

Generates less friction . . . delivers more power to the output shaft.

● INDIVIDUALLY ADJUSTED

IDLER ARM fits exactly into gear train for optimum gear meshing . . . eliminates back-lash.

PINPOINT ACCURACY

Rotator turns at one r.p.m. through 360 degrees. Ample time to orient antenna to the optimum position for each channel. Electrical and mechanical stops prevent drift. Stopping and reversing is instantaneous.

**FRICION-FREE,
STRAIN-FREE
ROLLER BALL
THRUST BEARING**

PRECISION-MACHINED, HEAVY-DUTY GEARS

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Additional on/off switch cuts power from transformer primary when rotator is not in use.

"AUTOMATIC" ROTATOR Model No. 9524

Gear ratio 3200 to 1. Holds stationary and rotating masts from 1/4 to 2". 4 1/4" bite on Antenna Mast, 4 1/4" bite on Support Mast. 240v. 50 cycle A.C. 90 Watts A.C. input. Shipping weight 13 lbs. Three-conductor rotor wire. (When four-conductor wire is used, 4th wire can double up on power line.) 365 degrees rotation in 60 sec. (1 r.p.m.)

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Heavy duty ball bearing guy rings, for extra large stacked arrays. Three- and four-conductor flat ribbon rotator cable.

ALL MOVING PARTS ARE WEATHER RESISTANT

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Feature for Feature . . . the "AUTOMATIC" turns in a class by itself!

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NARROW BAND F.M.

P. A. LOWE,* VK3ZDO

FOR quite a long time the author has regarded f.m. as more desirable than a.m. for local work on the v.h.f. bands. Until recently this view was held on theoretical grounds, but a recent trial has confirmed its practical advantages.

An f.m. signal may be generated by modulating the oscillator of a conventional c.w. or a.m. transmitter. Fig. 1 shows a simple method of frequency modulating an existing v.f.o. A junction silicon diode (type 1N1189) is used as a variable capacity device, back bias is not applied from an external source but is presumably derived by rectification of r.f. from the v.f.o. Audio is obtained from the existing a.m. modulator. Fig. 2 shows the arrangement of the components in the tuning box of the v.f.o. in the writer's unit.

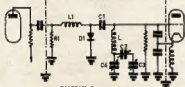


DIAGRAM 1.

C1 5V, R1 100K, L1 2.5Mh r.f.c.,
D1 1N1189.

In order to maintain the deviation constant it is desirable to apply some sort of a.g.c. to the modulator (e.g. a clipper filter arrangement). If this is not done, when the voice is raised (as in a DX opening) the signal will become rather broad, much to the annoyance of those nearby.

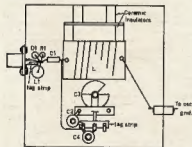


DIAGRAM 2.

From the receiving angle, f.m. is the only system by which complete amplitude limiting may be obtained without distorting the signal. This means that all a.m. components, including man-made noise, can be removed from the incoming signal. This is a very real advantage in most city and suburban locations. Amplitude limiting such as this will also eliminate fading, as experienced in mobile work on any band and may even be of advantage in DX work on 6 metre Es.

The main problem in f.m. reception is that to realise the full advantages of this system fairly complex demodulating circuitry is required. The unit to be described for this purpose is perhaps a fairly simple answer. This unit was first used in the U.S.A. as a 5 metre receiver to demodulate modulated oscillators. Just after the war the circuit appeared in "QST" for use with a 200 kc. i.f. and it has most recently appeared in June 1960 "QST" for use with an i.f. of 80 kc. The constants in each circuit are almost the same, the variations being minor and apparently of no practical importance.

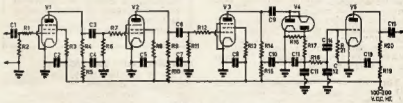


DIAGRAM 3.

C1, C3, C5-47 pF.
C2, C4, C6, C7-0.01 pF.
C8-0.1 pF.
C9-25 pF.
C10-0.5 pF.
C11, C12-0.002 pF.
C13-0.05 pF.
C14, C15-0.005 pF.
R1, R2, R3, R13-100K ohms.
R4, R5, R6, R7, R8, R14, R15-15K ohms.
R9, R10-15K ohms.
R11-22K ohms.
R12-4.5K ohms.
R16-37K ohms.
R17, R18-4.5K ohms.
R19-1K ohms.
R20-500K ohms.
V1, V2, V3-6AK5 or 6ACT.
V4-6AL5 or 6BE6.
V5-6CA or 6J5.

Notes: The suppressor grid of the 6AK5 is internally connected.
The value of C10 determines the base response of the unit. This being greater when C10 is large.

The circuit is shown in Fig. 3. To insert the unit in the receiver it is necessary to provide an i.f. output, an audio input, and some means of disconnecting the a.m. detector (see Fig. 4).

V1, V2, and V3 are audio limiting, the output from these being square waves, which activate a pulse counting type detector V4. V5 is an extra audio stage if necessary. At the low h.t. used, the valves recommended for V5 run at zero grid bias.

The acceptable deviation for this unit is governed by the passband of the i.f. strip. If the received signal is too broad gross distortion results. Limiting may be adjusted with the receiver r.f. gain control and results have been found quite satisfactory in eliminating car noise, electric drills, etc.

Active in Melbourne on 6 metre f.m. are VKs 3BX, 3ZEL and 3ZFS. They are using a net frequency of 50.97 Mc. VK3ZFS also is on 50.32 Mc. This

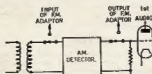


DIAGRAM 4.

modulation or audio break-through when an a.m. signal is used, an f.m. signal will not produce these effects, so eliminating the trouble. Those who have used narrow band f.m. on these bands find that there is little to choose between it and a.m. of equivalent power.

F.m. activity is appearing in Melbourne, but I know little of happenings in other parts so if anyone would like to drop me a line to the address shown, I will include the information in a further letter.



AMATEURS! YOU CAN ASSIST TO PUBLICISE OUR HOBBY

The Elizabeth Amateur Radio Club will be operating its Club Station, VK5LZ, at the Elizabeth Birthday Celebrations to be held in November. The station will be on the air from Friday evening, 24th November, until Saturday evening, 25th November.

To make the display more interesting to the public, the Club will be looking for plenty of good contacts on 40 and 80 metres. All Elizabeth Amateurs will be on during the Saturday so if you are interested in obtaining an "Elizabeth Award" a good opportunity will be during that day.

* Ormond College, University of Melbourne, Parkville, N.Z.

THE ANTENNAMATCH*

Part 1.—General Considerations of a New Aid to Maximum Efficiency in Aerial Matching

F. HICKS-ARNOLD (G6MB)

It is a fundamental truism that "any given aerial is only as good as the matching between it and the transmitter permit it to be." Unfortunately, this is all too often overlooked and much useful power is wasted on its way to the radiator.

Power transfer from the transmitter to the aerial system is nearly always carried out by the use of some form of transmission line between the output of the transmitter and some convenient feed point along the aerial itself. When the transmission line is correctly terminated to the load presented at either end, and the line itself has the correct characteristic impedance, then, and then only, are the voltage and current uniform throughout its length and r.f. power flows along the line in the form of a travelling wave.

The ratio of voltage (V) to current (I) is the characteristic impedance (Z_0) of the line and is determined by its type of construction. Correct matching and uniform travelling wave occur when the aerial load is equal to Z_0 , and the line offered to the transmitter is also Z_0 . If the load at the aerial or end of the line remote from the transmitter is of a pure resistive nature and of Z_0 impedance, then it will accept all the power which the line offers. Should this not be so, a second travelling wave will be reflected back from the load to the source of power.

The interaction between the forward travelling or power wave and the reflected backward travelling or loss of power wave results in periodic variations of V and I along the line, referred to as standing waves. The impedance V/I offered to the transmitter now depends on the degree of mismatch and the length of the transmission line, since for every volt offered to the line by the transmitter there is a reflected voltage fed back along the line. The phase angle between the forward and reflected voltages may be of any relative angle depending on the length of the line and may either aid or oppose the transmitter. If the mismatch is severe it may be difficult to load the transmitter correctly, and as the average current in the line is increased, so is power lost by line resistance also increased. If the load presented to the transmission line is of Z_0 impedance and purely resistive, then the phase angle of voltage and current flowing along the line will be zero, and the total power presented to the line will be accepted by the load. Should the load be not purely resistive, but reflect back either capacitive or inductive reactance, then the phase angle will change from zero to a figure depending on the magnitude of the reactance and of a sign determined by whether the reactance is capacitive or inductive.

● It is never very easy to be quite sure that a transmitter is delivering maximum power to its radiating system but the instrument to be described in this and the succeeding article enables the necessary measurements to be made quickly and simply. The Antennamatch is one of those devices which, once installed, is likely to leave the user wondering how he ever managed without it. Its construction should be an urgent project amongst all those wishing to employ their transmitting equipment to best advantage.

LOADING THE TRANSMITTER

Thus it can be clearly seen that for maximum transference of power from the transmitter to the aerial two conditions are required: correct impedance and zero phase angle. The ratio between forward and reflected current in a transmission line is called the Reflection Coefficient K and is related to the standing wave ratio by the equation:

$$S.W.R. = \frac{1 + K}{1 - K}$$

K is always less than unity, since the load cannot reflect more current than it receives, so that for a perfect match K is zero.

If these two conditions are not present, difficulty will be found in loading the transmitter with the correct coupling. How many of us have been guilty of adding another couple of turns to the link coupling to the p.s. tank when it appears that the final will not load to the correct value? Such expediency is unforgivable and quite useless as a method of getting more power into the aerial—it serves only to increase the standing wave ratio on the line and to increase the circulating current, thus further increasing losses by heat and reactance thrown back along the line.

With the ever increasing popularity of the pi-network and its advantages for harmonic reduction, correct matching between the final stage and the aerial becomes even more important. If the load presented is not correct, the Q of the final tank circuit will not be as the designer intended, and efficiency will be reduced. Should there be standing waves on the transmission line, a "low pass filter" inserted in the line cannot work correctly and instead of attenuating the undesired harmonics it may make matters worse.

LOW PASS FILTERS

Many commercially-made low-pass filters have incorporated in them fixed capacitors of comparatively low voltage rating; a correctly terminated low impedance line has a voltage across it

well within the rating of such capacitors, but should the filter be introduced at a point where high voltages exist (due to standing waves caused by incorrect load matching) then there is every likelihood of the capacitors breaking down and destroying the filter. In fact these very points were brought home to the writer when using parallel 807s in a final stage and a pi-network for matching the anode impedance of the 807s to 75 ohms. The low impedance line from the transmitter (75 ohms) to the aerial matching network was terminated by a single turn Faraday screened link. This single turn was made from the same coaxial cable as the line, and was of a rating suitable for 150 watts input to the transmitter. In spite of this the link got so hot that the inner conductor melted its way through the polythene insulant and shorted through to the outer screening. The insertion of an r.f. ammeter in the 75 ohms line showed a current of 6 amps! If all were well and the line correctly terminated, then such a current into 75 ohms would indicate a power of 2.7 kilowatts—rather a lot for two 807s!

It was evident therefore that all was not well and that a bad standing wave existed on the 75 ohm line.

THE PI-NETWORK CIRCUIT

For a pi-network final, conditions for C1-L-C2 must be of the correct calculated value for the frequency in use, and the Q value desired in the network. The network has a specific job to do—and that is to give an impedance transformation from that of the anode load impedance, of whatever value is to be used in the final, to some specific impedance required to be presented to the transmission line. This specific output impedance is usually 50, 75 or 100 ohms to suit the characteristic impedance (Z_0) of the transmission line to be used. Only when these exact values and conditions are observed can the impedance presented to the line be correct. All possible variations of these values should be eliminated. In practice, the use of a large variable capacitor for C2 should be avoided, especially if L is also made variable. For ease of tuning, switching C2 should be a fixed value as calculated for conditions required, and L either tapped and switched or made variable.

Theoretically, it can be shown that for any given set of conditions the values of C1-L-C2 are fixed and of one value only and can be made so in the transmitter; in practice, due to variations in the mains voltage and changes from one end of the band to the other it is desirable to have some control of the final loading. Such a control can be arranged so that C2 is made up of a fixed value to very nearly the correct theoretical value, plus a small amount of variable capacity in parallel to take

* Reprinted from R.S.G.B. "Bulletin," May '55.

care of voltage and frequency changes. Better still, the whole of C2 should be fixed at the correct value and L made variable. With C1 and L at resonance and with the final stage operating under correct conditions of input, one can be sure that the impedance at the output and presented to the power end of the line will be of the correct calculated Z.

PI-NETWORK CALCULATIONS

Methods of calculating values for C1, L, and C2 have been described many times both in the "Bulletin" and other technical journals and the writer would refer the reader to a most excellent article entitled "The Design of Pi-network Tank Circuits" by H. Whalley (G2HW) in the R.S.G.B. "Bulletin" for April 1952.

It may be as well, however, to re-emphasise here some of the more important points to bear in mind when designing such networks. In order to calculate the values of C1-L-C2 for any given frequency it is necessary to know the values of R1 and R2, which are the resistances to be matched and XC1, XL and XC2 which are the reactances of the network components (see Fig. 1).

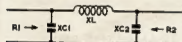


Fig. 1—Pi-network suitable for harmonic suppression.

In such a network the sum of the capacitive reactances must be equal to the inductive reactances when at resonance, and of a suitable Q value, in order to give the "flywheel effect" so essential for the operation of Class C r.f. amplifiers. Q values from 10 to 15 are suitable for efficient operation of the p.a. and for reasons explained in the article already referred to, the impedance ratio to be matched, i.e. R1 to R2, should be appreciably less than 100:1. R1 is the resistive impedance that the p.a. must work into in order to deliver its rated power output.

In class C operation and steady carrier condition, the r.f. voltage at the anode of the p.a. valve is about 80% of the d.c. supply voltage. If the h.t. voltage be called Eb, then the peak r.f. voltage will be 0.8 Eb and the r.m.s. value of this voltage E will be $0.707 \times 0.8 \times E_b$ or $0.57 E_b$. The r.f. power actually delivered from the p.a. valve may be taken as 66% of the d.c. power input. This power is delivered into the effective anode load R1, thus $E^2/R1 = P$, and $R1 = (0.57 Eb)^2/P$. R2 is the surge impedance of the transmission line to the aerial system and in many cases will be around 75 ohms. This value will not be affected by the inclusion of a low-pass filter provided the line is correctly terminated by the aerial system and the filter has been designed for an impedance input of 75 ohms.

PRACTICAL EXAMPLE

Taking a specific example, suppose that the d.c. input to the final is 750 volts at 200 mA. (150 watts input). Then Eb will be 750 and P will be 100.

From the formula,

$$R1 = \frac{(0.57 \times 750)^2}{100}$$

$$= \frac{427.5^2}{100} = 1830 \text{ ohms.}$$

$$R2 = 75 \text{ ohms, and}$$

$$\frac{R1}{R2} = \frac{1830}{75} = 23:1$$

For convenience and greater ease of the use of the excellent graphs in Whalley's article, an answer sufficiently correct can be found from $R1 = 2,000$ ohms, $R2 = 75$ ohms, and $R1:R2 = 25:1$, and the circuit Q value 12. From the curves we then get $XC1 = 185$, $XL = 220$, and $XC2 = 25$. From reactance tables the exact value of C1-L-C2 for each frequency required can be obtained. Since $750V \times 200 \text{ mA}$, is a popular condition, using such valves as a 4D22, 829B and QV06/40 (sections in parallel) or a pair of 807s (in parallel, actual values are given in Table 1.

Freq.	C1	L	C2
3.5 Mc.	250 pF.	9.5 μH.	1400 pF.
7.0 "	125 "	5.0 "	650 "
14.0 "	65 "	2.5 "	300 "
21.0 "	40 "	1.75 "	210 "
28.0 "	30 "	1.2 "	150 "

Table 1.—Values of C1-L-C2 for conditions of 750 volts at 200 mA. and Q of 12.

For efficient operation and good harmonic reduction the ratio of R1/R2 should be as low as possible and the Q kept at 10 or 12. For this reason low voltage and high current type valves are easier to use with good efficiency than those of the 4/65A or 813 types using high anode voltages.

With these features established and put into operation, one can be sure that the correct impedance will be presented to the power input end of the transmission line. There remains then only the problem of ensuring that the load or aerial will reflect back a similarly correct impedance at zero phase angle, for the total power generated by the transmitter to be transferred to the aerial. (Ignoring normal line losses which cannot be avoided.)

MATCHING THE TRANSMITTER TO THE AERIAL

Unfortunately this problem is not so simple to resolve—somehow the aerial has to be arranged so that when coupled to the low impedance transmission line from the transmitter, it "looks back" along the line as a pure resistance of 75 ohms. Many devices have been used in Amateur Radio to tell when the transmitter is matched to its aerial load: impedance bridges, r.f. ammeters, s.w.r. detectors and similar devices all supply valuable information. Not one of them, however, is capable of telling the whole story. Ideally, what is required is some device that can be inserted in the low impedance line between the transmitter and the aerial matching network, a device that can be left permanently in the circuit and capable of passing the full power from the transmitter. This apparatus must be able to detect any deviation from correct impedance and zero phase angle

and be able to compare these factors directly with conditions set up in a perfect load.

Such a device is The Antennamatch which has been devised and adapted for Amateur use from a unit designed by Virgil True of the U.S. Naval Research Laboratories. It was originally intended to drive an automatic aerial tuning system and is capable of furnishing valuable visual information for any radiating system.

The Antennamatch as now developed and adapted will furnish the following information:

- It will indicate when the load impedance is of the desired magnitude or if it is too high or too low.
- It will indicate when the load is non-reactive, or if not, whether the reactance thrown back is capacitive or inductive.
- When the load has been adjusted to the correct and desired value and is non-reactive, it will indicate the power output from the transmitter as accepted by the aerial.

The device consists essentially of three measuring instruments in one unit:

- (1) Impedance magnitude detector.
- (2) A phase angle indicator.
- (3) An output section containing an r.f. ammeter and a dummy aerial. The particular version described in this article is designed for use with 75 ohm line and a maximum r.f. power of 100 watts.

The theory of the impedance magnitude and phase angle detectors is not at first glance apparent and the following brief explanation as to their working may serve to show their particular suitability for helping to solve most of our aerial matching problems. Fig. 2 shows the essential circuitry of both the impedance detector and the phase angle detector.

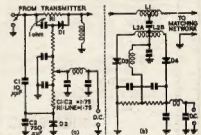


Fig. 2—(a) Circuit diagram of the impedance magnitude detector. (b) Circuit diagram of the phase angle detector.

IMPEDANCE DETECTOR

From Fig. 2a we see that a resistor is placed in series with the transmission line. The r.f. voltage drop across this resistance is detected by means of a crystal diode D1. At the same time a voltage which is a portion of the line voltage is applied to a second diode D2. The voltage applied to D2 is a constant fraction of the line voltage, determined by the ratio of C1 to C2. The voltage applied to D1 is the voltage drop across the one ohm resistance R1 inserted in series with the line. The ratio of C1 to C2 is approximately 1 to 75, thus when the total load impedance meas-



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ured at the output of the sensing circuit is 75 ohms, the voltage applied to D1 is 1/76 the line voltage, i.e. the same magnitude as the voltage applied to D2. We have therefore two arms of a bridge circuit and the d.c. output voltage will be zero.

The accuracy of this circuit is such that as the ratio of C1 to C2 is 1 to 75; at balance condition the impedance seen by the sensing unit is 74 ohms. The terminal impedance to the feeder line then 74 ohms plus the one ohm series resistance or 75 ohms. If the terminal load impedance is greater than 74 ohms, the voltage applied to D1 is less than the voltage applied to D2 and the d.c. output will be positive. Conversely, if the load impedance is less than 74 ohms the voltage applied to D1 is greater than the voltage applied to D2 and the d.c. output will be negative. Such a d.c. response varying both in polarity and magnitude according to whether any incorrect load presented to the output side of the detector is either too high or too low in impedance is ideal for indication on a centre zero reading meter or for operating a servo controlled balancing system.

THE PHASE ANGLE DETECTOR

The phase angle detector (Fig. 2b) consists essentially of an inductance in series with the line, coupled to another inductance across which a Foster-Seeley type of discriminator is connected. The coupled inductance is centre tapped and is in effect two inductances L2A and L2B in series. The voltage applied to D3 (a crystal diode) is the vector sum of VC2 (a voltage in phase with the line voltage) and VL2A an induced voltage that lags the line current by 90°. Similarly the voltage applied to D4 is the vector sum of VC2 and VL2B, an induced voltage that lags the line current by 90°. The d.c. voltage VO is the difference in magnitude of these two rectified voltages.

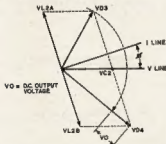


Fig. 3.—Vector diagram of the phase angle detector.

A study of the vector diagram (Fig. 3) reveals that as the phase angle goes to zero, when the load becomes purely resistive, the output of the circuit goes to zero, and that the sign of the error voltage is dependent upon the sign of the phase angle and whether the change be caused by an inductive or capacitive reaction reflection. These are the two prime requisites of a detector to control a servo system or indicate on a centre zero reading meter. Another desirable feature of this circuit is that the sensi-

tivity, defined by the rate of change of voltage out with respect to a change in phase angle, occurs in the neighbourhood of zero phase angle. This permits extremely accurate phase angle correction.

From this theoretical explanation of the working of the impedance and phase angle detectors, it will be seen that the output from both detectors is zero when the terminal impedance of the line is 75 ohms in magnitude and has a phase angle of zero degrees. This is the condition for a perfect match between aerial and feeder line, and as such, a condition for maximum transference of power from transmitter to aerial.

When in practical use, the output side of the detectors is first connected to an ideal pure resistive load (i.e. dummy aerial) and the transmitter set up to its tuned up condition (i.e. minimum dip on the p.a. current meter at the correct current reading in loaded condition). In our specific example previously mentioned this would be 200 mA. with the anode volts at 750. As the transmitter will then be operating into the correct load, both centre zero reading meters on the detectors should read zero. If this is not the case, small correction can be made by use of the two variable potentiometers. The purpose of the potentiometers is to bring about a correct balance and to permit of some variation in the fixed ratio of C1 to C2 or R1 from one ohm thereby making the circuit components less critical.

The transmitter having been correctly set up into the dummy load the output is then switched to the aerial matching network which is so adjusted to bring both indicating meters to their centre zero point. When this has been achieved the aerial should present the correct load and accept the same power at exactly the same d.c. input to the p.a.

(Part 2, to be published next month, will describe the construction and use of the Antennamatch.)

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DO you, the Radio Amateur, realise that, because of your special skills, you have a lot to contribute to the national defence of Australia?

Are you aware that training is available to you which will increase your contribution and at the same time broaden your own knowledge of Radio?

If you cannot answer these questions in the affirmative, the following article will tell you how part time, paid service in the Citizen Air Force can help the nation and help you.

WHY WE HAVE A CITIZEN AIR FORCE

In time of war or national emergency the R.A.A.F. will be required to step up its activities. Certain sections of the R.A.A.F. will need greater numbers of skilled technicians and tradesmen to cope with the increased amount of work. It is the task of the Citizen Air Force squadrons during peace to convert skilled men to R.A.A.F. procedures and equipment so that they will be immediately available for productive service in time of war. It is considered that in a future war there will not be sufficient time for men to be trained as was the case in World War II. This leads to common acceptance of the fact that we will fight with what we have at the outbreak, and the C.A.F. auxiliary squadrons will be a part of "what we have".

This concept of C.A.F. service is not new to the Radio Amateur. Before World War II the R.A.A.F. Wireless Reserve was formed to ensure that the large body of Radio Amateurs, who were willing to serve the nation in wartime, would be better equipped to do so by being trained beforehand in R.A.A.F. procedures and equipment.

This organisation was of tremendous importance to the R.A.A.F. when war broke out. Its members quickly filled key posts in the larger R.A.A.F. allowing a great expansion to take place very rapidly. By the end of the war many members had reached senior rank and one had become a Group Captain.

C.A.F. squadrons exist in five of the States and are located at bases adjacent to their respective capital cities as follows:—

Victoria: No. 21 City of Melbourne (A) Squadron, R.A.A.F. Base, Laverton.

New South Wales: No. 22 City of Sydney (A) Squadron, R.A.A.F. Base, Richmond.

Queensland: No. 23 City of Brisbane (A) Squadron, R.A.A.F. Base, Amberley.

South Australia: No. 24 City of Adelaide (A) Squadron, R.A.A.F. Base, Edinburgh.

Western Australia: No. 25 City of Perth (A) Squadron, R.A.A.F. Base, Pearce.

Each of these squadrons utilises the training facilities available on the base and as these vary from base to base the squadrons have slightly different requirements for technical personnel. For instance, No. 21 Squadron is mainly interested in you, the Radio Amateur, because the R.A.A.F. School of Radio is also based on R.A.A.F. Laverton and extensive facilities are available for training radio technicians, telecommunications technicians and operators. A limited number of suitably qualified personnel are also required for training as airframe and engine mechanics and fitters.

THE IMPORTANCE OF RADIO AND COMMUNICATIONS TO R.A.A.F.

During an increase in R.A.A.F. activities in war or national emergency, one of the first elements to feel the strain is that concerned with message handling. It becomes necessary for 24-hour watches to be maintained, thus requiring more operators. The handling of more traffic means less time for servicing and maintaining the transmitting and receiving equipment. Much the same considerations apply to the equipment used in connection with aircraft, such as navigational aids, control tower equipment and radio and radar gear carried in aircraft.

To keep the aircraft flying at a high rate, serviceable radio equipment, whether on the ground or in the air, is just as important as an adequate supply of fuel, bombs, ammunition or missiles. This is particularly so in these days when aircraft operate in all types of weather and rely exclusively on radio and radar for navigation and, in many cases, for weapon releases. It is clear, therefore, that increased numbers of skilled radio and communications personnel are required to carry out repairs and service the various equipments in the shortest possible time.

During war an aircraft, grounded through unavailability, is of no use at all. Similarly, unserviceable communications equipment or shortage of operators will soon cause a backlog of messages which will lead inevitably to delays and difficulties in the planning and execution of flying operations.

ADVANTAGES OF C.A.F. SERVICE TO THE INDIVIDUAL

Apart from the needs of the R.A.A.F. for more airmen in a war or national

emergency, which have been outlined above, there are some definite advantages to be gained by the individual who elects to serve in the C.A.F.

Once in the C.A.F. an airman has access to different and more advanced equipments than those normally available to the average civilian. This being so, he will obviously enhance his value, and thereby his prospects of advancement in his civilian employment. If he is strictly a hobbyist he will certainly improve his technical knowledge.

The comradeship which C.A.F. service offers is similar to that which exists in a club. Men with common interests are grouped together and form a team. The members of this team learn to work and act together and by doing so build up a spirit of mutual reliance and pride in their group. From this a keen spirit of rivalry and competition is built up between the various groups, which in the R.A.A.F. are called flights or sections, and ultimately between the five squadrons.

Each year the C.A.F. squadrons proceed interstate by service aircraft for a continuous technical training camp lasting up to 16 days. This period is the time when the training which has been carried out at home bases is thoroughly tested under operational conditions. The C.A.F. airman works alongside his counterpart in the Permanent Air Force and if he does this successfully he has achieved his goal. This year No. 21 Squadron will proceed to Townsville in early September for one week. "On the job" training will be provided for the second week of the camp at Laverton.

The prospect of promotion in C.A.F. squadrons is good for the right type of individual. Initial periods of enlistment are for two years, followed by subsequent re-engagements of one year. A training year consists of up to 52 days which is made up of 12 week-end and a 16-day continuous camp, totalling 40 days. The remaining 12 days may be made up of "on the job" training by mutual arrangement between the member concerned and his particular squadron.

C.A.F. service costs the member nothing. He receives pay for each day of attendance. His uniform, accommodation and meals are provided and he receives an allowance for fares to and from training parades. However, he must live within a 50-mile radius of the location of the C.A.F. squadron to which he belongs.

It is therefore clear that part-time service in the Citizen Air Force is extremely worthwhile to Radio Amateurs who have the qualifications and the time to spare. Should a situation arise where mobilisation is ordered,

(Continued on Page 12)

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FOURTH JAMBOREE-ON-THE-AIR 21st and 22nd OCT. '61

Time of commencement: 1000 hrs. Sat. 21st. Duration: 48 hrs.

Interest in this event is growing rapidly as more and more Amateurs and Scout Groups are getting together to arrange their participation. In most cases the Scouts and Cubs are being invited to visit the Amateur Stations but in some areas, portable stations will be set up at the Scout Halls and Camps. Radio Clubs are offering their full co-operation, the outstanding one so far is the possibility of the Mountbatten Radio Club setting up a portable station at Clifford Park 500 Senior Scouts from all over Victoria are expected to be in camp there for the week-end.

In areas where there are no Amateur Stations available, listening groups will be established. It is hoped that a list will help in this way and submit logs.

The following Amateurs have accepted appointment on behalf of the Boy Scouts Association of Victoria to assist with the co-ordination. They will be available on Tuesday and Thursday evenings on 80 metres from 2030 hours.

VK3ARL—Alan Brown, Eastern Melbourne Suburbs
VK3WC Ewan Cameron, Western Melbourne Suburbs
VK3AUL—Arthur Look, Central and North-Eastern Area
VK3AKW—Bill Kinacella, Central Western Area
VK3EK—Jim Stevens, North Western Area
VK3TH Gordon Morrison, Gippsland.
VK3ABT John Barber, Geelong Area.
VK3AGD—John Woodburn, South Western Area.

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D.C. Input Current: 5.9 amps. at 60W. output.
D.C. Output Voltages (14 V. in.) 400, 300, 200 or 150 V.;
400 & 200 simultaneously or 300 & 150 simultaneously.
D.C. Output Current: 150 mA maximum total from full and half voltage taps or 150 mA. each if switched to alternate loads.

Efficiency: 78% at 60 watts output.
Operating Frequency: 1 Kc/s.
Maximum Operating Temp. (i.e. ambient air temp. at point of installation) 150°F. (approx. 65°C.).
Filtering: Adequately filtered in full voltage output load and provision for filtering in half voltage output.
Dimensions Overall: 6 in. x 3½ in. x 3½ in.
Mounting: Universal type.
Full Instructions and Circuit Diagrams supplied.

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Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

ROSS HULL CONTEST

Editor "A.R." Dear Sir,

Although it is rather late to suggest rule changes we wish to support strongly the suggestions made by VK3QV.

Most entrants would agree that if the objects of the Contest are to be realised then its conduct should be such that:

- All entrants compete on an equal basis — no geographical bias.
- Scoring is weighted according to the difficulty of the contact.
- Scoring and checking is as simple and rapid as is consistent with (a) and (b).
- Rules are clearly stated.
- Results of the Contest are in a form enabling analysis of v.h.f./u.h.f. propagation conditions.

Without wishing to submit detailed proposals, we make the following comments.

(a) "Cross town" contacts are clearly "out" because their admission favours the heavily populated areas, quite apart from the absurdity of giving points for contacts which require no operating technique or effort. An exception should be made for u.h.f./s.h.f. contacts which should be encouraged.

(b) and (c) Insufficient incentive is provided for u.h.f. activity. Points should be at least doubled for successive higher band contacts in the u.h.f. region. A number of anomalies

exist in the present method of 50 Mc. band scoring. Equal scores are awarded for all overseas contacts. This ignores the original handicaps that exist for overseas working. Neither is an allowance made for the differing propagation condition within a State call area. It would be desirable to examine previous Contest results and divide VK land into areas (perhaps cutting across State lines). The scores could then be weighted according to the rarity of the openings between these areas, as in the present system. This would improve the present system without introducing the labour involved in distance scoring.

(d) The 50/61 rules are NOT clearly stated. Example, Rule 5 "Only one contact per band per section each calendar day" should read "Only one contact with the same station per band per section on each calendar day." The bonus system is also ambiguously stated and has been misinterpreted. The flat bonus gives no credit for the rarer call areas and should therefore be modified. Also the final scores do not reflect the effort made by the Keener operators since only one point per contact is awarded once the few initial contacts are made with a given call area.

Our final comment concerns the scientific value of these Contests. There must be a considerable amount of useful information on propagation patterns lying dormant in contest logs. We therefore offer, should P.E. and P.C.C. be agreeable, to inspect and analyse the results of the next Contest in order to glean as much data as possible. Has any such effort been made in the past?

—Paul Edwards, VK2ZAJ.

John Humble, VKY Associate (ex-VK6JR).

[Correspondence on this matter is now closed as the P.C.C. have reached a decision which will be published in a later issue of "A.R." —Editor.]

REMEMBRANCE DAY CONTEST

Editor "A.R." Dear Sir,

It is with regret that I write this letter, but I feel bound to refer your readers to Rule 12 of the Remembrance Day Contest—"A.R." July '65, page 8.

My remarks, of course, do not apply to all Amateur Operators who participated, but to those selfish and irresponsible few who, in the contest, (a) purposely and consistently exceeded the installation capabilities of their equipment, apparently to draw attention to their presence, (b) purposely "equal" on an occupied channel while numbers are being exchanged, apparently to clear the frequency of an irritating weak signal, and (c) pointed out the other nation's weakness.

The unhappy conclusion to be drawn is that those concerned care little, if anything, for the purpose of the Contest, or for what the general public, who may be listening, think of the Australian Amateur Radio Operator.

If Rule 12 was enforced the number of acceptable logs would be reduced, but at least in years to come the R.D. Contest would be conducted in a right and proper spirit.

Now that in future Contests of this nature a number of responsible persons monitor the various bands, and where necessary recommend to the Contest Committee the public disqualification of offending operators.

I realise that the wrath of many will descend upon me, but it will be well worth while in my opinion to have the desired effect, that is, a Contest in Remembrance of Amateurs who paid for our present conditions with their lives, and not a cacophony of worse than mediocre signals such as obtained on August 13 and 13, 1961.

—Mortan P Davis, VK3JNG.

[Other letters received will be published next month.—Editor.]

—

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RADIO AMATEURS IN NATIONAL DEFENCE

(Continued from Page 9)

you would be in a position to know what you were doing from the outset. You would, because of your basic skill, to which C.A.F. training has been added, be of infinitely greater value to the defence of the nation than the man straight from the street. Last, but by no means least, your chances of quick promotion would be immeasurably greater.

VISIT TO NO. 21 CITY OF MELB'NE (AUXILIARY) SQUADRON

So that No. 21 Squadron can show you the training which it has to offer and the types of equipment available, a visit to the R.A.A.F. School of Radio at Laverton has been arranged for Radio Amateurs on Sunday, 8th October, 1961, from 1 p.m. to 5 p.m. All Radio Amateurs are cordially invited. The four other C.A.F. squadrons have a much smaller requirement for radio personnel because of their relatively limited training facilities in this field. However, if you are interested in C.A.F. services, you should contact the Commanding Officer of one of these squadrons or the local R.A.A.F. Recruiting Officer.

Commanding Officers are listed below.

- No. 21 City of Melbourne (Auxiliary) Squadron: Sqn. Ldr. L. M. Bird, 88-0311.
- No. 22 City of Sydney (Auxiliary) Squadron: Sqn. Ldr. L. Reading, D.F.C., Windsor 2271.
- No. 23 City of Brisbane (Auxiliary) Squadron: Sqn. Ldr. W. N. Nichol, Ipswich 4051.
- No. 24 City of Adelaide (Auxiliary) Squadron: Sqn. Ldr. W. C. Keritz, M.B.E., Adelaide LX9.
- No. 25 City of Perth (Auxiliary) Squadron: Sqn. Ldr. C. F. Fivash, A.F.C., Perth 74-1271.

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35/- each plus 5/- handling charge.
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9-pin Valve Sockets, McMurdo, 9d. ea.
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Type R89/ARN-5A. 300 Mc. Valves: seven 6AJ5s, two 12SN7s, one 12SR7, one 28D7, six relays, and three crystals of 6522.9 Kc. As new. £5 each.

MULTIMETER, MODEL 200H

20,000 ohms per v. d.c. 10,000 ohms per v. a.c.



Complete with internal battery, testing leads and prods.

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RECORDING TAPE

TMK "Syncrotape" 7" Rolls, PL-12 (Standard) ... £1/16/6
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American Bradley, 2" long, 1" shaft, 1" diam. Available in following sizes: 20,000, 25,000, 30,000, 50,000, 100,000, 250,000 ohms, 1 and 2 megohms.
Price 2/6 each.

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U.S.A. Ampenol Coaxial Plugs, 5/- ea.
Morse Key and Buzzer Sets, new, 12/6
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Vibrators, Oak/M.S.P. 6v. synchronous 7-pin AV5211R ... £1 each

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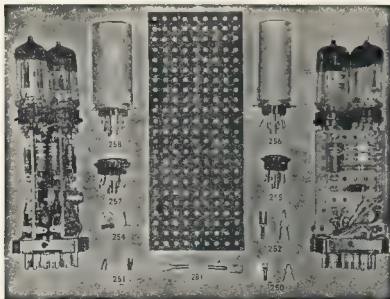
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SIDE BAND

Bob Pounsett, VK2AQJ
Alice Street,
Queanbeyan, N.S.W.

S.S.B. HAMFEST

No doubt you have already heard of the weekend amateur show down in Melbourne where the W.I.A. Victorian Division and the Collins Radio Co. got together and organised a demonstration of single sideband equipment. Our reporter, Jim Jims, covered the event for the Sideband notes. Jim says that Melbourne W.I.A. officials declare that it was a record attendance at any W.I.A. 'do' since the W.I.A. began. The Sideband Convention was held at the South Melbourne Town Hall on 29th July Executive and Technical Staff from Collins Radio (Aust.) Pty. Ltd. were in attendance and two operating Amateur Stations were in action—one on 30 mhz and the other on 40 mhz. In addition, there were several static pieces of equipment such as a 75S1, 75S3 and a 32RS1, which is a commercial transceiver with four pre-set channels in the 1.5 to 15 Mc. range, single sideband of course. Collins do not make one single piece of a.m. equipment.

At 2 p.m., when the show began, about 150 were present, many more than was expected, and the final figure was in excess of 250 "when counting became difficult." Mr. Alan White, Chief Field Engineer, gave a fine talk on the production of a.s.b. and the construction, function, working and manufacture of mechanical filters. This was an eye-opener to many. This followed the production of a.s.b. with a 32S1 transmitter and the reception of it with a 75S1 receiver. Next came a colour film with sound on a.s.b. and Collins equipment. This was received by a very attentive audience indeed.

At 3.15 p.m. the practical demonstration commenced and large crowds surrounded the two Amateur Stations. Each Amateur Station consisted of a KW342 transmitter and a 312S-4 Station Control with a semi-vertical dipole fed with 25 ohm co-axial cable. The 312S-4 Station Control contains a speaker, a directional watt-meter and a phone patch and has been designed for use with the Collins Amateur receiver-transmitters. Plenty of DX was worked on 20 mhz while the 40 mhz station was used for VY contacts. These took place simultaneously without a trace of interference to each other.

Any Amateur who went away from this demonstration still thinking that a.s.b. is yet in the experimental stage does not want to touch either the Victorian Amateurs or a debt of gratitude to the Collins people for this fine display and while it brought Collins equipment before those who attended, it did something much more. It showed just what a.s.b. equipment can do, how effortless and enjoyable sideband contacts can be, and, in fact, what the a.m. operations are missing.

It is to be hoped that the South Melbourne function will be repeated in other States, overwhelming support is a certainty.

The thinking 1961 Amateur is very interested in Single Sideband.

THE 9 MEG. SECTION AT VKRON

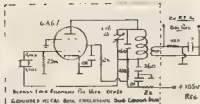
(Fourth Part of Series)

The oscillator circuit shown, using a 6AG7, will make almost any crystal work. The writer tried his hand at grinding an 8.5 meg. crystal up to 9.0 meg. The result was a rather sluggish crystal. The 560 pf plate coil by the way is the value giving best results. The L/C ratio used is unnecessarily low and a coil with more turns, and about 50 pf capacity would be p.p. when the next re-building is in progress. Note that meg. oscillators are a bit tricky anyway and low capacity v.h.f. tubes are to be preferred.

An alternative circuit using a 4.5 meg. crystal, doubling in the plate circuit is worth considering. If the v.f.o. covers 4.5 to 5.7 meg., the result is then a happy one for three-band operation. Note that the range 2.05-3.2 meg. to cover the 40 mhz band (see previous articles) with much better separation of spurious v.f.o. signals on the band.

When tuning C18, place the r.f. probe on one balance-pot, and set condenser on the gradual decline side of the voltage peak. Oscillation should start this way.

Shielding and by-passing is very important, especially the 0.01 pf. disc capacitors, at the heater pins. Not a whisker of 9 meg. r.f. should

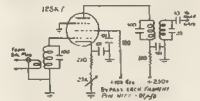


9 Mc. Oscillator.

reach the 9 meg. amplifier except what comes via the balanced modulator. Actually the one sub-chassis metal box encloses both the 9 meg. oscillator and the EF86 first audio, with a metal partition between these. It was not necessary to place the 9 meg. crystal inside the box, and it is above chassis.

Leakage around the bal. mod. may be tested by checking the point of balance of the balance pots at different settings of the 9 meg. gain control. The balance pot settings should be the same at all degrees of 9 meg. amplifier gain. To diminish leakage the oscillator should run at a low power level, just enough to supply 30 mV to each of the balance pots.

For the 12SK7 9 meg. amplifier stage, 30 meg. i.f.'s from the RT34 were used, requiring additional capacity. A g.d.o. is useful here to find the required amount for resonance. Full gain in this stage is never required, but the variable control is very useful. The audio gain is advanced as far as possible, short of distortion and the 9 meg. gain is decreased in step. The result is a very satisfactory carrier suppression and freedom from carrier "drift." A further gain control at the first linear stage (6AG7 in AB1) ensures that no stage is overloaded and there is correct drive to the final linear on all bands.



9 Mc. Amplifier.

Note again the by-passing of the heater line at the 12SK7 socket with 0.01 pf. disc capacitors. As noted previously, this stage is called on to deliver a peak of 3 volts only to the mixer, so a gain of five times would be sufficient for most purposes. When balancing-out carrier, however, one can turn the gain to maximum.

The r.f. probe is worth its weight in gold and takes about 30 minutes to put together. The four miniature components are arranged and tied near the end of a short length of dowel rod. Where it is wished to measure r.f. without disturbing the tuning of a circuit, a tiny 100K resistor (with twist of copper wire at one end) may be attached to the nail on the end of the dowel rod. The addition of a small "aerial" to the probe allows one to use it as a radiation meter when the final is operating. (See previous "A.R." for similar devices.)

U.S. CONTACTS ON 30 METRES

In a recent conversation with Bob VESAYE, the situation on twenty was discussed at length and Bob makes the suggestion that when working U.S. stations from the low end, indicate that you will listen exactly 200 kc. higher in frequency. The method has been adopted by recent DX-peditions and found to be very workable. It enables the State-side operators to switch ranges on their transceivers (KWM1, KWM2, 75S1/75S3 combination, etc.) and quickly go from listening on, say 14135, to transmitting on 14335 kc. The DX operator can also employ this method if he is lucky enough to own such equipment. It will bear it to your imagination as to what the 14300 odd kc. frequency will sound like if the DX is very rare.

VHF NOTES

(Continued from Page 13)

ed on each band a bonus of 10 points by the contest committee. If both stations claim, so keep your distance recorded. Serial numbers with the usual RS and RST reports should be exchanged. For your score to count, the following information must be forwarded on Bill Report VK3ARZ by the following Saturday.

Your score, together with the longest distance worked and with whom that contact was made, as well as your portable location. It is suggested that you carry with you an envelope, stamped and addressed to VK3ARZ, Lot 57, Orchard St., Mount Waverley, so that you may post your score on the way home. These scores will be your only claim in the contest, so it is up to you to ensure that it is there for the final tally.

The winners of each section will receive a trophy for their efforts, details of which will be announced later.

The dates for those without calendars are: Sept. 16, Oct. 15, Nov. 15, Dec. 17, Jan. 21, Feb. (N.F.D. date), Mar. 18 and Apr. 15.—3AAU

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N.S., Victoria.

There were only nine letters received this month, apparently all have gone into limbo-land for the winter—what, with no DX around! Oh well, if you s.w.f. want this page to appear every month, pen me a letter, we don't mind as long as I have some radio in some form. I would like to hear from the Groups in VK4, VK8 and VK1 again sometimes, just let us know how you are getting.

The awards are well under way again, so by the end of the year we will all know what they are about.

Contest—it shall not be long now chaps and it's a beauty, made a mistake last month's notes re a proposed newsletter. Forget all about it—reason being it can't be done as simply as we thought. So for the time being we will content ourselves with this page, but mind you, its success depends upon your activities and how you pen them to me. Mac Hillard and I hope you will wonder how close winning the listener's section of the R.D. Contest.

I've just woken up to why I haven't received many letters, it's all because of the Test Cricket to be the small hours of the morning, and I know I've been doing it. But it's been mighty interesting don't you think?

VK NEWSLETTER

VK8. The last meeting was held at our temporary building at 283 Queen St. and 30 s.w.f. heard a very fine introduction to the club. Able to build on to build converters from BU1 3AR2. Judging by the questions and the notes taken down, I think Bill may have started something to expect to see converted to h.f. bands in the near future. Bill held us spellbound for over an hour. I have not much to say about the evening, except to say we stand it all. Bill, on behalf of the VK3 gang and myself, thanks a lot.

Gee, I almost forgot, last night (4th Aug.) nine of us budding would-be Amateurs (except a few) expected to see converted to h.f. bands in the near future. Bill held us spellbound for over an hour. I have not much to say about the evening, except to say we stand it all. Bill, on behalf of the VK3 gang and myself, thanks a lot.

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VK8 Seven of the local s.w.f.s. in Mt. Gambier (at the time of writing) are going to have a contest. Colin has been tuning up their rx's. Colin found that a BU7 i.f. amp. gave up the ghost in his 7-value rx. On replacing it, the "bunk" in life of the rx was gone, but nothing heard on 10 or 15 (your not alone in that Colin). Al Rechner, ZCR, is now back in Adelaide and they are trying to get him to help with the VK8 Amateurs. They were very pleased to have Al's help and thank him very much for the improvement of the Group.

Garry L5036 has just completed an Amstar band tuner which will feed into his 7-value which at the moment is being re-built to accommodate the tuner on the front panel. Garry took some photos of the group but the flash light was not working 100 per cent so the photos were no good, but soon we hope to have a better one. Colin has fitted an Edystone dial to his rx; it has a 10:1 ratio drive and a nice calibrated dial it is. Colin received a letter from Len Darrin, VK4 and he hopes to see him Command rx soon. How are you, Len? How's listening?

That's all for the VK newsletter and as I said last month, I hope to hear from you other groups in the coming months.

CORRESPONDENCE

Thank you once again chaps for your letters. They have come from Cal Hutchinson, L5051; Chas Abernathy, L2211; Peter Westcott, L5046, Peter Field, L5039, Alf Westcott, L2136/VK4, Eric Trebilcock, BEHS-185 L2642, John Walker, L2211, Dave Jenkins, L3608, and Ian Thomas, L3083.

The Master first Eric went to the monthly meeting and heard a very good lecture on the Universally banding info. The first boys had equipment on view and Eric said he could follow the lecture very well. Eric has given his opinion on the changing of the s.w.l. number. He thinks that it is important that the call sign be as brief as possible. Therefore, he thinks that in his own case VK3-168 would be better. The first boys had equipment on view and Eric said he could follow the lecture very well. Eric has given his opinion on the changing of the s.w.l. number. He thinks that it is important that the call sign be as brief as possible. Therefore, he thinks that in his own case VK3-168 would be better.

Well Eric, I agree to a point, I like many others, think VK3-168 is much better. VK is the country, 3 the State, 1 for listener, and 88 the person's number. The other way could mean VK country and 2,043 listeners, which is wrong for sure. So we are submitting VK3-168. Advice re the acceptability of this change in number will be mentioned in this page as soon as it is approved.

Eric has had 90 countries confirmed this year to date and has 202 countries in the last month's best cards. FQHP, MPQAR and UAZAC. The FQ8 was a new country for him. He has heard 17 ships this year, but only four QRP. He has heard a lot of good writing and what he has done has been on 3.5 Mc. However, other than VK and ZL, nothing has been heard. The best VK stations coming down to 3.5 Mc and you're quite right, Eric, 14 and 7 Mc. are not good at all after dark, but sometimes 14 does open to W last, around 2.5-3.5 Mc.

Letter from Ian Thomas, L3083. He talks of his doings on the v.h.f. bands now that he has his 2 call, is having bugs, etc. I'm sure he has been and he's interested in s.w.l. when he gets time. Good for you, Ian, and we all hope you soon get going on the h.f. bands OK and work that elusive v.h.f. DX.

Dave Jenkins, L3608, is next and says he has good news for me. He has at last counted his countries heard score (see the ladder), but is not sure of the number. He says he's sent him a list of them. He had a letter from Jack Clayton, L3015. Jack is interested in the use of the power supply, plus transistorised power supplies. Dave wishes he had an s.w.l. or up at Orbel, then he would buy a AET or H.R.O. as he is more interested in that operating. Jack says he's heard that one gets a kick out of building something on a few occasions and seeing them work well. By the way, he's interested in using an Astor all-wave tri. battery set covering 80, 40 and 30 mc. Has had two quad antennas for 30 mc, but they both blew down in gales. Because the interest in discone wind resistance.

John Walker, L2211. He's just received his s.w.l. number and is interested in John boards at the Armidale School and he reports that for the last fortnight 40 mc has been very erratic at times; he's going to do more listening on 40 mc very soon. He's also been on 30 mc at times. His best DX was XE1IT. John reckons that the VK4 fellows must have very good beams, he counts them as they hear them when they work the Ws. Well, John, I don't think it's their beams, it's skip between VK4 and VK2. It's the same here on 30 mc. I can't hear the VK4s any more, but I'm in a blue moon. John's rx is still in the workshop awaiting to be re-aligned; apart from getting a amplifier he's making, there's not much news.

Malcolm Hannah, of VK4, wrote asking me about a good rx to buy. I have advised him as best I could, but he's not the type you wanted Malcolm.

Peter Field, L5036 never stops listening. This he has told me. Darrin, VK4, has told me about the moment—they sure log plenty Peter hopes to add another rx to his collection soon for use on the h.f. bands with converters feeding into 3.5 Mc. He says he's just got going on 288 Mc. and have heard absolutely nothing, except car ignition and noise, but he's not sure. He's also been on 11 lines up with the g.d.s. What about your antenna Peter, how and what is it? Peter also makes me a bit of a puzzle. He's been between L5041 and L5046; former under ARS rx and the latter a 5-tube converted h.f. rx. All the best to you both.

Howard L5034/3ERK. Howard's society is at zero potential. At the moment he is using an old 1945 5-valve superhet, but not as sensitive or sensitive as he would want it to be on 30 or 40 mc and it doesn't work

on 18. It now leaves him 1 mix to work on and he works it now that he has his call sign. He's changed the antenna on 18 mc and is now using two 11 element beams, one wave-length spaced. At the moment Howard has a 5-tube superhet with the changing beam, and about 13 valves dual or over-couple conversion on 5, 14, 11 and 28 Mc. It will be a crystal locked 4-valve converter feeding an 11-valve 5-tube 5 Mc. More details next month.

Poor old Chas Abernathy, L2211, the cold weather has him down; his listening time is limited to Sunday afternoons. The reason being he's getting older, weather, and the one-eyed monster—shame on you, Sir Charles, fancy letting little things like that get you down. It must be hard for you not to leave the cold in the shack. Look at all the DX you are missing.

Peter Drew, L5021—the last for this month. At last he's heard his first W on 80 mc. It was VK4 and he heard him on the 80 and 8th July at 1030 and 0930 GMT, he was 4 x 4 on s.w.l. Peter was using a 3-tube regen rx and a piece of wire 15 ft. lying on the floor. The reason for the short antenna was to cut out the QRN. Of course it cut out a lot of signal. Also on the 8/71 he heard on 80 mc W on 80 mc. It was 18 on s.w.l.

The most startling DX was on 30 mc s.w.l. which was absolutely flat and out of the blue popped Y81M5 who was 3 x 3, also ZL1AX which have 1 heard that before. Y1Z1A and NZ1AB. Peter has found 30 mc much the same as we have over here, poor, occasional European, some W and V. Much of the DX on 30 mc, which gets through much better than a.m. even with his queer method of dissolving it.

Chas has been reading a book and I pass it on to all you other lovers of DX. In "CQ" recently, they printed some prediction about the next minima will be in May 1963 and the next maxima in 1969 or 70 which conditions will be much about the same as now. Conditions will not be like the 1958 feels until about 1963, but won't be worried about that (see sure!). Gee that's grim chaps, I hope they are wrong. Yes, Peter, it sure was a bad one, 14 and 7 Mc. back in '58.

Nearly forgot Alf Westcott, L2136/VK4. He has another country confirmed, MB1U/T, which brings him up to 71 confirmed. Man, you sure have gone ahead in leaps and bounds the last fortnight. Don't stop, keep going for you. Don't apologise for sending a lousy report. After we know the bands are in a bad mood and you'll let hear by DX, just keep listening, they will come good.

DX LADDER

Countries	Zns.	S.B.	S.B.	No.
Cont.	Hrd.	Cont.	Cont.	Hrd.
E. Trebilcock	70	277	40	8040
A. Westcott	71	157	30	31
Mac Hillard	72	188	18	3
M Cox	73	189	18	3
C Abernathy	74	189	18	3
P. Thompson	75	189	18	3
T Heywood	76	189	18	3
P. Drew	77	189	18	3
M. Harrison	78	189	18	3
D. Jenkins	79	189	18	3
R. Wood	80	189	18	3
A. Johnson	81	189	18	3
D. Allen	82	189	18	3
T. Miller	83	189	18	3
J. Walker	84	189	18	3

Well my friends, there's the DX ladder again, quite a few alterations this month. Don't forget now about letting me know of your additions. I must repeat—if no alterations, then I must omit you from the ladder until advised of new figures. I hope you all will abide by this rule. Also, if any of you have any suggestions re what you would like to read in this page, just write me a letter. And I would like to hear from the other VK s.w.f. groups re their activities.

So that's all for this month. The very best of DX, T3, Maurice L3088.

WANTED! ARTICLES

Can you write an article for "Amateur Radio"? How about one for Hints and Kinks?

GENERAL MEETING

TAPE SERVICE

COMBINED OPERATION—DUAL

COUNCIL MEETINGS

SILENT KEY.

VK4KL—Ivo Johnson

JAMBOREE-ON-THE-AIR

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There are some, of course, who hide their heads to sell the kind viewers. A resident of Westy named Bob has been doing this for years but at last his sins have found him out. Not that he wouldn't have got away with it for ever but he has to go and spoil it all by going on 80 mcs. Now, I ask you, how is it possible to hide an 80 mc dipole behind the average 30 foot tree? Well, it isn't.

He was just standing there in the middle of Six O'clock Rock. But he wasn't dancing.

The big event this month of course is the Annual Dinner and Field Day. The Dinner this year is to be at the Esplanade Hotel on Saturday night, 30th Sept., at 7.30, while the Field Day is being held at the usual place, Blackalls Park on the next day, Sunday, 1st October, beginning at 10 a.m. A really first class programme has been organised and you

CONVENTIO

FIELD DAY

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- Six Bands: 80, 40, 20, 15, 11, and 10 Metres.
- Kit comprises: Six-Band Coil Unit, Calibrated Dial with Perseus Escutcheon, 2-Gang Matched Tuning Condenser, 1st I.F. Transformer (4.6 Mc/s.), Aerial Trimmer Condenser and Osc. Trimmer Condenser.
- Can be used as Converter—output 4.6 Mc/s.
- Circuit and alignment procedure with each Kit.
- Power Supply Extra.

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cannot afford to miss this event. The total cost is \$1.00 for both functions, but should you not wish to attend the field day the cost for the dinner is \$1. If the Field Day only attracts a lot of people, it is going to add up to 10/- for the two. You'll not be sorry. All the details will appear in this month's Bulletin and everybody can see for their way then will have to ask a policeman.

Our old pal Ben ZART has been up to something odd so it seems and has managed to break the law. He will need to do it, you'll have to get better for the Convention. All the chaps wish you a speedy recovery. Also on the sick list this month is Max MacLachlan. Hope you are soon 100 per cent again Max. The only other sick man I can think of is Lionel 2CS. He's sick of seeing 27 and radio control gear that won't start. It's told. Apparently the RX plays strange tricks if your RX plays strange tricks too, then you'd better bring yourself along to the next meeting. Keith Jeffcoat, 2B4K, will be there with two RX's, one modified and one unmodified, CR100. He proposes to tell you how to get the most out of your RX's and how to handle them. It's done. That includes you Shannon! For those who don't know, we held our meetings on the second Friday of each month at the University of Wollongong. So if you want the date is the 8th, so drag yourself away from the one-eyed monster and put in an appearance at 8 p.m. See you, 73, JANK.

SOUTH WESTERN ZONE

The South Western Zone, N.S.W. Division, held a meeting at Waga on Sunday, 23rd July, to determine where they would hold their 9th Annual Convention. The meeting was well attended, there being 17 members and four associates present. The boys from Tumbarumba got the word and suggested that they be given the opportunity of holding the Convention at Tumbarumba this year and this was supported by all present. The date for this important event was the 30th September and 1st October, 1961. A warm welcome is extended to all Amateurs who wish to attend. For further information, seek the Notice in this issue.

During the meeting, the Zone Officer, Jim 2AOC, tendered his resignation from that post. Jim has been giving a very good service to the Zone and his resignation, for personal reasons, was accepted with regret, and many thanks for all he has done for the Zone. His place in the Zone in general. A new Zone Officer was appointed, Bill ZAHV, who, after election, assured the meeting that he would do his best to fulfill the confidence the meeting had shown in electing him to this position.

The meeting closed when afternoon tea was kindly served by a number of KYLA.

THE BLUE MOUNTAINS SECTION

The July meeting was held as usual at Lawson, and ten members were present. As the President is not to be with us, Bob 2ASZ was "in the hot seat". There was no lecture set down for the evening, but a lengthy discussion on 2 mX portable equipment, made of the views and was very good. The facts and figures and is working on the project so that we may assist in communications with the Bush. The Blue Mountains very good ideas were discussed and it looks like we will get many takers. There being little business, the meeting closed and a hot supper was enjoyed.

HALLICRAFTERS COMMUNICATION EQUIPMENT

Agents are to be appointed for this very fine range of equipment for the following States: Queensland, Victoria, Western Australia, South Australia, Tasmania, and Northern Territory.

A good knowledge of import procedures would be an advantage, but not a necessity.

Write for information to the Hallcrafters' representative:

W.F.S. ELECTRONIC SUPPLIES CO.

227 Victoria Road, Rydalmere, N.S.W.

by all, followed by the usual ragchew. Some forty odd 8000 type tubes were made available by yours truly's salt mines and duly sold like hot cakes for the benefit of the club. The 6000 is identical to 12AT7, so may have some more in the future.

The Club had its first get-together for some while, using two bands—80 and 2 mX. Every thing seemed to go OK and we kept it up fellows. Remember second Friday night, 80 and 2 mX, at 2000 hrs.

My pal told me that Sid 2AVK and Stan 3AFL, who were visiting Sid, dropped down to Lawson for the meeting the Friday before. Well, Sid, that is a new excuse to be clear of the house. Al 2GZB and Bob 2ASZ called in on yours truly but we were well on our way to the Entrance. Sorry fellows, called on 40 mX and then to St. Mary's, so thanks Don 2ART, for entertaining my visitors. Anyway a nice week-end was had by all. Called in on Ben 2HN, who, incidentally, is on 2 mX, so sorry your Wiggins WJ for Bob most nights at 2000 hrs. Also called in on Trevor 2TM at Woy Woy and had a very enjoyable afternoon. Trevor will be moving QTH to Glenbrook very soon. Another one to the club.

Coming Events.—Lawson Field Day in October. Date to be determined at the August meeting. Full particulars next monthly Bulletin. Scout Jammer—see the Air. Several Scouting groups on the lower Blue Mountains, Camden and the Oaks have been organised, the dates being 21st and 22nd October, so keep this in mind—73, ZADA.

VK-ZI CONTEST

PHONE: 30th SEPT. and 1st OCT.

C.W.: 7th OCT. and 8th OCT.

1000 hrs. GMT to 1000 hrs. GMT

BOORAGUI HIGH SCHOOL RADIO CLUB

A meeting of the School's Ladies' Auxiliary donated £10 to the club funds. This was received with much pleasure and it will go towards the purchase of a Geloze v.t.o. Our new modulator is nearly ready to go, but we are having trouble with an oscillating circuit. The club is also buying coupling capacitors in an effort to overcome the trouble and while doing so nearly changed himself to dust by finding out with his finger. Unfortunately one of our crystals, 7125, turned against us and went on the blink. We are unhappy about this but perhaps all will be well when the v.t.o. arrives. During Education Week we are having an open day. Among the displayed items will be a radio control kit built by Len 2GZB and a cabinet with matching RX constructed by Ian Forrest, 7A, Bruce for 2ATZ.

CHRISTIAN BROTHERS' COLLEGE

RADIO CLUB—VK2ATQ

Great progress is being made in the way of equipment, but operation on the air is still restricted to the very few keen members. With a good deal of assistance, we hope to be working s.a.b. after school hours and to have an occasional period of school-work to let the whole class talk over its problems with the DXers and the club.

The new GSRV flat-top is working out well on 40 and 30 mX. We made it to the exact specifications given in "A.R." early this year, and it's a big improvement on the previous dipole.

1500 new QSLs are practically ready, and will be circulating in the club this year. So give us a call if you'd like one—20 or 40 mX most week days about 1245 Z.S.T.

John (harmonic of 2LKI) received a call from his uncle, 2MKA, and had a very good discussion. A powerful mobile s.a.b. signal from Reg 2AI was heard during the month. DX worked was nil.

An AVZE demonstration triode was set up for a week to help explain and show the working of valves.

A few contacts in the R.D. Con. test, and log submitted. That's about the lot for now, so best 73 and good DX.

VICTORIA

VK3 Council has decided to change some of the membership fees of the W.I.A. It has decided to drop completely the entrance fee. Members will continue to pay \$3/3/- p.a. associate members \$2/15/- p.a. however, persons under the age of 18 will be bona fide students not in receipt of regular income,

under 25 years, can be full members for a fee of \$2/15/- p.a. or associate for \$1 p.a.

Country members continue to pay \$2/15/- p.a. for full membership and \$2/10/- p.a. for associates. These fees are recharged to 1st August for new members. Old members, this new scale comes into effect on 1/3/62. A "country member" now resides outside a radius of 35 miles of the Melbourne G.P.O.

ATTENTION VK3 MEMBERS

The VK3 Inwards QSL Manager requests that the undermentioned please deliver to him QSL cards intended for them, either by calling at 340 Gillies Street, Thornbury, in person or sending Rite a s.a.s. Those concerned have QSLs on hand dating back to at least 1959 and in some cases to 1955. Thanks to those members who have responded to the 371 addressed but stamped envelopes. The concerned are: VKs 3AB, 3AN, 3BQ, 3GA, 3GV, 3JD, 3JE, 3KL, 3MS, 3NH, 3NL, 3RP, 3SO, 3UD, 3WM, 3WR, 3VS, 3XU, 3ZJ.

Keep them stamped, addressed envelopes rolling in chaps.

WESTERN ZONE

We welcome a newcomer to our Zone. He is Norman Blake, VK2ZLJ, at Negotiate, who after getting rid of some troublesome bugs in his 1x is now active on 6 mX. His new QSLs are being recharged to 1st August. 3NN of Yassac, and Max 3ZCW of Ouyen, have assisted to keep the airwaves busy in that zone.

Keith 3GQ of Murrumbidgee also caught the v.h.f. bug too and has a three element yagi on a 60 ft. tower in readiness for a crossband contact. So far conditions have been against any attempt to make a QSO, but they should succeed very soon.

Norman is especially pleased in that he has also passed the exam for Broadcast Operator's Certificate of Proficiency. He is making the best of his opportunity to obtain further QSOs as he is due to leave for Missionary service overseas toward the end of this year.

We expect to have quite a few stations active on the air for the Jamboise-on-the-Air weekend, so expect a nice lot of contacts.—3AKW.

NORTH EASTERN ZONE

This Zone held the first Zone hook-up for many months on Friday night, 21st July on 37 Mc. It was very pleasing to all concerned with the following following: Ken 3KCR, Peter 3APF, Frank 3ZU, Vern 3AKW, and Arthur 3AUL. Apologies were received from Bob 3JUW a couple of nights previously, owing to a prior engagement at the Albany Radio Club.

Various suggestions were made and discussed, several of which would be finalised as they were of such a nature that it was felt that more members of the Zone should be given the opportunity to voice their opinions on the various points raised.

Everyone on the hook-up was in agreement as to the night, time and frequency for future get-togethers, which will remain as every Friday night on 37 Mc. It was decided to make a note of the time and frequency and of course remember the night—each Friday.

Peter 3APF and friend have been "hugely satisfied" with the results of the evening, climbing around the countryside modulating lights! There seems to be more in this than meets the eye. Methinks, however, we shall be able to make a few more contacts. The male might be on to something. Frank 3ZU still busily engaged on the sideband rig and the female is a singer and a singer and a singer. Prospective Hams over there in Yarrawonga.

W.I.A. N.S.W. DIVISION SOUTH WESTERN ZONE

NINTH ANNUAL

CONVENTION

at TUMBARUMBA

30th SEPT.-1st OCT. 1961

The usual field event will be held and a good time is assured.

For all inquiries and required accommodation, contact W Coombs, VK2AWE, P.O. Box 61, Tumbarumba, N.S.W.

going for the Z call in the near future; good luck to you shape, but what about the full ticket?

Ken 3KR is really doing things in style these days. On the picture show Friday night and takes along a smoke signal rig, talks to the boys and watches the flinks at the same time. He reckons it may be the answer to tv. Probably all the signal comes from the picture show at Benalla. Would like to know what you use as an antenna. Ken, maybe shoot it through the projector.

Another one to do things in style is Vern JACW, of go-cart fame, believe it or not, he's doing it. He's got a rig that operates the rig from the kitchen while she does the cooking of cakes, etc.; can't see this going on in the country but for this time chap don't forget to look up us some Friday night and let the boys know what you are doing or planning to do. 73, JACW.

MIDLAND ZONE

A gentle reminder regarding the 80 mc hook-up appears in the first issue. The following appearances of these Zone Notes last month with the details of the hook-up on 80 on the first Thursday of every month, a good attendance was registered but unfortunately resembled an a.w.l. night as almost everyone listened, heard no call, and gave up. If someone had that the courage to transmit, there would have been a hook-up and SAHA would not have built his fire in vain. Full of enthusiasm, he stoked his fire and tx in that order, but was rewarded with nothing but a little else, because his signals were unheard in Maldon, Bendigo and Kanarook Flat. Be that as it may, the next time, the boys and someone will speak next month. Even if my XYL does come to the back door hurling abuse because Channells 1, 7 and 9 are no longer available, I will not care. I don't even have any snow on it, which is more than you can say for the picture.

Two of the Zone Notes continues unabated with 3JW calling most evenings around 7 p.m. He has a good signal out, but has difficulty in receiving weak Melbourne stations. From all reports the rx in Melbourne are good, but 3's are underpowered, being mostly 3Ms. More power out from the city will help the country boys and help to encourage activity in the bush. After all, it is useless to build good converters and tx's if those distant stations won't do likewise.

3FY finally put power into the aerial from a 322, but with the original oscillator, also put power into three tv. Channels. Alteration of the oscillator to a 3rd overtone cured this trouble and harmony once more prevailed in the home. A minor detail such as the wrong type of pump-out plug almost ruined the first contact. It was most difficult for 3JW to find 3FO has good to mobile on 8 and 3 mhz. Details are not available yet, but all Col needs to do is get into the air and the rest is at the top of Mt. Tarrengrower and signals should spread all over the State. The Mount will be the site for a 3rd meet-together on Sunday, 24th Sept. It is forewarned should be forewarned. At the moment plans are that it will be a free for all, with mobile rigs, car hassling and the like. The weather is a little better than room. If the weather holds, it may be a good idea to take the XYL, YL, and/or harmonies along. Let everyone know the plans, and their own family best. Listen to the hook-up for precise details but don't forget the date. After the first meeting of the Zone last month, 3BM took home a 3 mhz converter for trial purposes, but to date we haven't heard whether Bruce has heard. Perhaps he is busy converting the group of members as he is attending the W.I.A. Dinner en masse and also

intend going along to the Penny Creek Convention, making a picnic day of it. At the Dinner we are hoping to be presented with the Perpetual Trophy won by the Club at the last National Pic Day.

As to personal bits, both George INQ and Bill 3JE are in the throes of the initial stages of getting going on a.s.b. The October lecture, by Les JAL, on a.s.b. should be of great interest to them as to Bob JNZ, AJL 3LC, having heard the call for help put over the W.I.A. news, has signified his intention of co-operating with the Malvern Troop Scouts in the Jam-boree-on-the-Air in October. Peter 3KK is also participating and we hope many more members will be helping in this worthy cause. The club station should be ready for this event. Other than this our 80 mc tx hunts are very popular and the boys are going along very smoothly, new members joining up every month.

In the Hamad section of this month's issue you will note that we wish to sell an AT3-AB3. This combination has been laying in storage for several years now and as we have several other projects on hand we thought it a good idea to dispose of it and get the necessary funds for these projects. It is as original and has not been tampered with or modified, so should be good for anybody who would like an outfit of this nature. We would like to obtain a Type 3 Mhz. 3 in good condition. 73, JACW.

QUEENSLAND

Well, how did you like our frosts this year? Few early morning operators failed to tell how cold it was in their locality. Just as well we have so much of the beautiful warm sun. By the way, you read this, winter should be well behind us and you'll be wondering where to try out the mobile. A trip away to the coast with the family and the car is a good excuse or I anticipate quite a few new mobiles this year; let us tear ourselves away from 80 and 3 mhz.

Jack 4FS, QTH was the place of our July Council meeting and Jim APR, Bill 4WX, Keith 4DG, Jack 4JF, Ken 4VR, Bert 4AO, Ron 4RL, Col 4NF and several others were present. We reported on Federal matters and brought up the matter of items for the agenda of the Federal Council meeting. Several of the boys have subjects that you think should be discussed on a Federal level start channelling them through your branch now.

Few were admitted; the correspondence, and how Bill 4WX has been hitting it, rushed through; certain items passed for discussion; noted that Steve 4BD was in hospital; a nice reply from Mrs. R. F. Roberts in acknowledgment of our wreath received, and we were ready to listen to Stan 4SA who, with our auditor Don Stanley, had come along to present his "Methods of Operation" for, in this case, the Queensland Division W.I.A.

After outlining aims and objects, Stan dealt with system. Briefly, the duties of office-bearers and means of carrying out those duties are laid down on paper to try and ensure the continuance of one effective system as long as most of us can see ahead. This endeavour to ensure that as personnel of the organization change, the system will remain lively, nifty, and past mistakes are not repeated.

Coming closer to home, parts of the scheme should also simplify the work of our auditor, who is responsible for the financial side, keeping that will simplify auditing. Some discussion took place as the report was being delivered and a few points tied up with giving receipts have to be settled. Stan's report was received and later Don had a few words to say on problems he comes up against.

Our thanks to Stan and Don for coming along and giving so much thought to the matter.

A 3SL card has been designed by the Tourist Bureau and they will be calling quotes to see how far they are involved financially. Money is a pretty short but quality is our first consideration and I have no doubt the Bureau is making a sincere effort to meet us in our requirements.

A League September meeting, Dr. Morrison, 4MO, will give a talk, illustrated by slides, of his overseas experiences, dealing particularly with New York and New Jersey. He attended there. Note the date carefully on your calendar 22nd September - as there are five Fridays in September and he will be along.

Subject to Council approval, the October lecture will be "Ionospheric Predictions and Theory," while the November lecture will be "Radio Propagation and Propagation."

The July meeting was held on 28th at State Service Union Rooms with a good attendance to hear Pat Kelly talk on "Radio Astronomy." The Divisional Library has received six copies of Phil Rand's T.V.I. Handbook

well, hve u got the
dope on those

aust bilt tx yet?

BIT INFO HR -

Silly isn't it? Anyway I've given a lot of thought as to how to tell you what we've got, without taking up the whole magazine, and came to the conclusion that the best way is just to tell you as if you had asked me.

We started off with a 150 watt c.w. transmitter, and built it into a very good looking table-top cabinet which we have made out of a new material; plastic coated steel (Marvplate is the trade name). The transmitter itself consists of a Geloso v.f.o. driving a pair of 6146 p.a. tubes with a pi coupler output circuit.

Wanting to make as flexible a design as possible, we arranged it so that any model Geloso v.f.o. would fit, and ensured that suitable component changes would allow the use of either one or two p.a. tubes, and that there would be enough clearance for 307 or 1625 valves if anyone wanted to use them.

In order to reach the widest possible market we have enabled almost any combination of components to be purchased separately; you can buy the complete 150 watt or 75 watt transmitters (two models of the latter) wired, or as kits; with, or without the v.f.o. (have you got a Geloso v.f.o. in that rig that gives you t.v.i.? You can buy the chassis and cabinet only, all drilled with knobs and all, or undrilled for do-it-yourself drillers; you can buy the perforated final amplifier cage to suit almost any final, a set of drawings for drilling the blank chassis, the instruction book (very complete) for both 75 and 150 watt transmitter kits (why not the chassis and pi coupler kits for a linear amplifier); and a conversion kit for changing a 75 watt unit into a 150 watt unit.

Prices vary from £27/7/6 (for the wired 150 watt transmitter) downwards

I haven't got room here for all the details, so why not write or phone us and we'll send you our descriptive catalogue.

Don't forget, you'll be able to see the equipment at the Victorian Division W.I.A. Annual Dinner at Scott's Hotel on Saturday, 30th of this month.

Until then, 73, Ian (Jock) Macmillan

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which will be ready for distribution to members by the time these notes are in print. At this time three copies are set aside for country members and three for local members, but they will be ready for sending to members by the 4VM on 4/20. I hope to have a copy on hand for immediate reference. Please return them as soon as they have served their purpose. In a month when the normal term of issue, although extensions may be given.

The Crossed Dipole award has been withdrawn as we are unable to keep up with demand, and they will be stored with our model of the AFRL receiver. They may be inspected on 15th March. As an internal historical item—the improved model—no transistors—now available £2.

This month's magazine, GRL, card lists VK4s, 4XG, 4ZG, 4GG, 4HB, 4BL, ex-432, 4JY, 4KK, and 4KP.

I was pleased to note some of the young chaps at the last Convention. We must have quite a few in the Institute. A good way to gain experience for administration is to become familiar with an organization. A few young chaps could be of great value to the Institute by assisting councillors with their work. Not only would you be getting training for office, but you would also be helping to ease the burden on older shoulders. Think how much easier the organization would run if the burden was shared. You would have some reason or other there is a "back stop" who doesn't let part of the show slow down, or stop. This should be shown with plenty of judging and awards. Don't let it be pushed—take the initiative!

AROUND AND ABOUT

Over 200 W6 cards from VK4TV were checked recently for Norma's application for the "California Award". Geoff 4XB not seen or heard since the time last he said he was making receiver alterations using Geolos front end, two countries are being confirmed for Keith 4DG regularly. Being a keen stamp collector Keith is putting the pins in his album. Geoff 4DX Steve 4BB, who is recuperating after an eye operation in Princess Alexandra Hospital, has been seen at the picnic. Geoff 4ZG is going mobile? Bill 4WS also looked Steve up, as did David 4DP. Ron 4ZDS, who is helping 4AO with the 4WV set, is a contender for his full time on the picnic. Geoff 4ZG is not on tv these days but can still be heard around the bands.

Bill 4HL has built himself a "turret tuner" rx and reckons turret tuners are "the goods". Ron has also built his mobile converter. Brisbane chaps report a pretty good signal of Bob 4ZP from Brisbane, from his mobile. Good to hear Bob 4RW on the Sunday morning hook-up recently. 80 mx is active with VKs and ZLs on s.a.b. and some good U.S. contacts are being made. David 4DP has new TA33 beam in action. Evan 4EF was in bed with "flu" the other day. Knowing Evan, I doubt if he will neglect the efficient handling of disposal matters.

Keith 4DG is very interested in the log periodic antenna and has the best information available. Keith is also working on a portable. Jim Hillhouse 4ZO, of Carpet St., Collingville, requires information on tribend quads for 14, 21, 35, 48, and 70 MHz. Keith 4VM has changed his mind. He doesn't want to go to the USA. He has a s.a.b. adaptor, Chas 4HQ has disposed of his Heathkit and has a Collins KW2M—only 1000 Hz. band, mobile, and a 400 Hz. Col 4CI has his own brand s.a.b. rig, and is at work on a rx for s.a.b. xtal control, Q multiplier, b.f.o., xtal converter—everything he can do. He is not sure he will be approaching D Day with his s.a.b. compact.

The Northern Command Club held their annual meeting in June, when the Presidents and Secretary's reports were delivered, and the election of office bearers took place. Elected were President Brian 4UW, Sec-Treas. Tony 4CZ, and Committee: Ian 4ZCL, Colin 4ZB, and 4ZAF. The meeting was enjoyed by all and a 332 rx was auctioned, while a s.a.b. handbook was raffled.

At general meetings on the first Monday of each month, visitors are welcome to come and also to stay for supper and a rag-wag. Major construction work is the installation of a complete new antenna system on the roof. It will take some months yet. Present work is modifying a 522 tx for 3 mx operation. A rotating antenna installed on 3 and 6 mx is in operation. The 4WV set on 5 mx is being modified for Tuesday and on the first Monday meeting night.

Due to the absence of the returning Hon. Sec. Ray Rumble, the annual meeting of the Southport Radio Club was postponed. Ray's jealousy got off frequency on the way to the meeting. Ray was unjoined and managed to get the

OBITUARY

JOHN A. LINDSAY, VK4AEK

Many will remember Jack as one of the stalwarts of the 10 metre band in the days following the relaxation of limitations. Unfortunately Jack has for some years not enjoyed the best of health, which resulted in his leaving us in the early part of July. We leave it with his family to whom we extend our sincere condolences.

IVO JOHNSON, VK4ELK

Ivo Johnson ("John"), VK4ELK, passed away on 23rd May, 1961, after a short illness.

He was an old Ham and was famous for his machine-like fist on the key. "John" took up radio way back in 1918 when he joined the Navy. Claude 4ZV, Frank 4FM and Basil 4ZV attended the funeral, which was a large one and well attended by members of the trade houses.

car to limp back to Murwillumbah. Notwithstanding this setback, the tape on Communications Interview was played to those present. It proved not only very interesting but also very informative and a number of us thought it was appreciated by all. (Thanks for the prompt return of the tape, Bill).

Bill 4BYL is writing a letter that the W. B. & B. monthly meeting was held in Gympie on 16th July and 25 persons were present. Basil 4ZV, 4ZG, and 4ZP, and Basil 4ZV travelled from Mt. Kyburh, Bundaberg and from as far south as Nambour. The meeting covered mostly branch business and the 4ZV group's refreshment was appropriate. In the afternoon a 144 Mc. hunt, run by Eric 4XR, was won by Ken Chiverton, of Nambour. Another from your "rust-bone" Ken, Barry 4ZG, did not enter as he was trying his new mobile rig in readiness for holidays the next day when he was going north on the motor. Hal 4JW was there.

Gordon 4JM also went up to the Commonwealth for parts for the new F.V.H. 2, which he is waiting to be fitted. He travelled from "Bundy" with XYL and daughter for the meeting where a pleasant surprise in the presence of their son, Allen, of Brisbane University, who had travelled to Gympie to meet Ma and Pa.

Eric 4XR returned to the A.O.C.F. Class on Thursday evening, accompanied by four people. The class finished with an excellent report provided by XYL Jean—thanks Jean.

Fred Cox never misses a meeting, but just can't find time for that ticket one on Fred. Bill Tomlinson travels from Tewantin every Thursday night to class—doesn't get home until 10 pm. I've seen a ticket, Bill 4BS 4SW charts the t.v. signals with an 100 ft. tower. What about a 144 Mc. beam on top, Bill? Vic 4BJ heard to tell he is going on 21 Mc. as there are now five new Amateurs in the town waiting for call signs.

Another bird flying over Cairns heard that Basil 4ZG is rushing to enable him to go to get their licenses. Two members of the class sat on Tuesday, 18th July, for their limited ticket and we hope they have passed the new ether checkers. Basil 4ZG has been in a period of twelve years since 4MR got his ticket. There has not been an examination in Cairns since then, with the result that he is sitting in successive examinations. Good work Basil. Believe you are also assisting a pupil with correspondence. Alex 4MA has resigned from 4ZG and is doing a ticket. Basil 4BS 4SW charts the t.v. signals with an 100 ft. tower. What about a 144 Mc. beam on top, Bill? Vic 4BJ heard to tell he is going on 21 Mc. as there are now five new Amateurs in the town waiting for call signs.

John 4ZAV is leaving Atherton to join station 4QY at Gordonvale. We hope he and Basil 4ZV have a little more success on 8 mx. Basil 4ZV is doing a ticket.

Kilgusberg Group—We hope the friendly rivalry which exists between VK4 and VK5 does not develop into a cold war. Many have other chaps are nearly ready. It is Howard 4WO, who has had quite a lot of verse published, will soon be persuaded to send in news in verse form. For better or worse? Ed 4I.

Interest in the Group has been sustained, each morning, the most consistent being 4OL, 4OG, 3GI, 4WU, 4WS and 4SA.

Bill 4WS, Alf 4OG, and Stan 4SA made a further trip to the QP to see 4BL and 4ZG. The time you read this DEL should be on the air again. Del and his XYL looked ever so much better on 4ZG than they did on 4WV, as usual, always talks about "front to back ratios"

when passing through Surfers Paradise and there will be no hiding him when the bikies are more plentiful during the summer months.

Alf 4OL is keen on experimenting and can be depended to change circuits either his mobile or fixed station at least once per week. George 4GG puts out quite a good signal on both his Command and his big rig. George 4BZ is starting to get some thoughts for the day his latest being "drive carefully". Your blood is better in the Red Cross than in the road. He has the road.

Keith 4GI is trying to get his road fixed up and spends a lot of his time filling potholes with water to bog the Shire Engineer's car. Eddie 4BB has been sick with the prevailing flu. He has been in bed for some time. The state of health Bill 4KO comes on when possible. Bill has come overboard on s.a.b. despite the fact that he has a really h.b. a.m. rig.

Fred 4VB comes on with s.a.b. on his new KW Viceroy and his latest transmission rack with the best we have heard. Get that bag over your Fred and you hear how the sounds with an aerial. Bill 4WD had a visit from Bob 4NG. Bob's photo in "A.R." was a natural. Those of us who know Bob, first looked for the photo. If it was real, it was just the end of it and there will be 4 Nancy George 4BZ set for his exam. in his chosen sphere and is awaiting results. Let us know when he celebrates Bill.

Step Press—VK4WQ takes the air. Wide Bay and Burnett Branch commenced with their call sign on Saturday afternoon, 8th August. Congratulations to all.

That's all Thanks helpers—AFZ.

TOWNSHIRE

Those lucky enough to read "CQ" for April and May will have received a very good insight into "Sunspot Activity". This is in three parts, the final one being in June. After reading the first two parts, you will see that the squawks were on the Amateurs to curtail their frequencies. The article points out the various sunspot activity for just over the last 11 years.

The so-called 11-year cycle, also a new one of 188 years, which is in the throes of being proved, is shown to be a cycle of 11 years on the higher bands above 14 Mc. So looks like us old chaps can just look back on the peak as the best we ever had and never to see another like that tale which we tell in another 10 or 15 years to the newcomers?

This truly paid a visit to "Uncle Xray" and was the start of a procession of callers, who were Barrie 4LM and XYL, David 4ZG, Jim 4ZO, followed by old timer Charlie 4ZG.

Rumour has it a chap from Ingham sat for the last exam and promises to come up on 144 Mc. This chap, Frank 4FC, into activity and giddens the hearts of the locals on this band.

Apparently my remarks in previous notes on the line signal caused some flurry, as I took the worse version of WWWV, JYJ, WWV, and not the tone as in the best informal circles.

Congratulations to our new scribe, 4BJ, on his first try. He has a good knowledge of the work and boost our "Sunshine" (don't mention the drought!). Maybe the "Panay" will win in face of such glowing advertisement of the "Sun". Ever see Doc 4JG visited the Gold Coast.

Mervyn what one can hear while tuning in on the 10 metre band. He has a good chap meaning about how we get it in the neck (a pocket) when buying commercial equipment from overseas. He illustrates the cost of a 100 watt transmitter, a 100 watt cost £100 Australian (25% exchange), plus duty 214% (now £117/10/0), plus 50% tariff for the Australian manufacturer. He doesn't build this class of equipment (now £131, plus 12 1/2% sales tax to help keep the country prosperous, making it just over £174). He forgets to mention the freight and duties. He about time some of the imports were removed. If these articles were made here, it would be a lot more reasonable. He has a good "tubbing"!! Election is on this year and who knows?

Hope our State does better in the N.D. Contest. TX, 4RW.

— — — — —

SOUTH AUSTRALIA

Once again the monthly general meeting of the VK3 Division was held to a capacity audience, again standing room only, but I must say that the attendance was very good. I think that for once the attendance was going to be well below standard, because as the meeting was opened by Chairman 4ZG, there were some late arrivals. I woke up later

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It would seem from the cryptic remarks inserted at the end of last month's notes by the Editor that apparently I slipped up on the fact that somebody had broken a rib, or a promise, or something. Well, after a number of infallible tests I had with the person that I well known and highly respected, to say nothing of being modest, retiring in nature, kind and forgiving, and a perfect physical specimen of humanity, has been laid low on his sickbed with an attack of flu. I am feeling pretty good, but I am not putting much into how Pinotti manages to get the germ over to us. VKS this time! TG, SFG (Pansy to you).

WESTERN AUSTRALIA

This has been another poor month for activity in VKX. Conditions on the high frequencies have been very poor and we are still struggling with the problems of t.v.i. as far as the country boys are concerned. Unfortunately reasonable pictures are received occasionally up to 3000 miles from the tx. Enough, anyway, to make the purpose of the exercise, i.e. the measurement of interference does to it is understandable. Of course it is always the Amateur in spite of the measures they have taken to prevent it. Especially 6WL, 6RG, 6CW and others. The result is that we do not have the QSOs on 40 and 30 mcs which we need for storage of information. However, we still pick up an occasional item of interest.

The July meeting was well attended in spite of the very inclement weather and an interesting lecture on "Improvements to T.V. Sets for Better Fringe Reception" was given by Mr. Arthur Hayward. After the meeting much discussion was carried on about R.D. Contests, i.v.i. and putting out more watts, etc., while members had a cup of tea and biscuits.

During the month our "modifiers" #BU, #BW and now #AB were heard in action on 46 mhz from various parts of the city. #AB hopes to make contacts with his 122 while on his country tours. #BH is still having problems with his new tx. His main trouble seems to be making the extra watts leave the warm shack and travel up to his ice-bound antenna. Hope you sort it out by R.D. day Pal. Try putting your ear in parallel with your antenna. #BU found out the shack was closed on Sunday so went mobile on the North Pole. Mole among the waves.

A stranger in our midst lately was VK6FJ/P in VK6 from Exmouth Gulf. He has probably moved on by now, but was heard in contact with 6LG. We welcome some new call signs to the bands this month. 6MJ, 6RB, 6VY, 6DW, 6CU (ex-62CU), 6ZDV, 6ZCI, 6ZCP, and hope they have many happy years on the bands. Our thanks must go to 6GH for the "Technical Glensings" after the news each Sunday. They are always interesting and instructive. 6TH is going on tour to Darwin and the Springs and hopes to keep in touch with VK6 with his 132 portable.

SCW is still trying to contact VR2BZ, ex- VK5CO, and may have done so by now. We have not heard much of Clem lately in the city except on 40 mhz Sunday mornings. Another call missing lately in IDR. Bill has gone north for a short period I hope. Bill 8RX is heard here some times on 26 mhz in DX contacts, that is when he is in the north direction. He is now fiddling with his modular antenna. Use of the good signal he generally puts out; hopes to do something extra on R.D. day no. doubt.

Judging by the "fiddling" that is going on VK5 will be on the ball for that R.D. trophy this year. It has been out on loan long enough. Well chaps no more for this month. Hope to do better when conditions improve.—73
6ZCK, per GLE.

TASMANIA

This month we regret that we have to extend our deepest sympathy to two members to Don TDK, following the death of his father, and to Edgar TRY, following the death of his mother.

Geoff TZAS has been on the sick list for about three weeks with pleurisy, but he has made a good recovery now. We were pleased to welcome Ray TZBJ, who was in Hobart for a few days, down from Launceston. Construction of new gear has been under way during the winter months, and Jim TJO has his new portable in operation. Joe TBJ has also got a 4w. rig operating and it puts out a good signal too.

Please remember our Divisional exhibit at the Hobbies Exhibition to be held in the City Hall, Hobart, from 8th to 9th September inclusive, from 11 a.m. to 10 p.m. daily. VKTWS will be on the air each evening and on the Saturday, either on the 80 or 40 mc band as well as all the time on the 144 Mc. band. Please ensure that the operators will have someone to talk to.

Also, remember the Fox Hunt with director's finding of mobile t's on either the 38 or 144. The hunt began Saturday, 29th Sept. at 10/-. per car will be levied for the benefit of the Club Room Fund raising accounts for the year. Meeting place is at the Esplanade, Sandy Bay from 2300 hours. Bring your own eats and milk if you want some. Another function to remember is the social on the 1st Oct. at 7 PM. Meeting place is at the beginning at 2000 hours again for the Club Room Fund. Admission 1/- per head, each member can bring as many guests as he wishes. This is a very important meeting. Bookings for a lecture by Alan TMY on the basic principles for a rx. His topic was simply illustrated by the excellent rx of his design. Thank you Alan for a most interesting lecture. Pet GGV had a week's holiday on the north west coast at the end of July and he enjoyed it very much indeed. Yes, I have been there. Although it is not my usual practice to write make an exception to the Institute, yet I shall do so for the first time in VKI 79.

NORTH WESTERN ZONE

Annual meeting the other night. Was in the act of congratulating myself that I had finished my term in the chair when I was dobbied in on this job. So had best pull up my journalist's socks and get into occupation. Our new President, Ken 7KH, takes office with our best wishes. It was a certainty of course that David 7KH would be the next Secretary, but I did not expect to also associate Alan Baptist did as Treasurer, George TXL suddenly found himself QSH officer, and Bob TZAA will still be v.h.f. officer. And so it's costs off and to the task. Will you read this, the 1961 R.D. Contest will be another pleasant surprise, and we hope you will be in this Zone provided some backbone to the general cacophony.

David TMS is looking for a crane with a lift of seventy feet and a touch as gentle as an old time nurse, to lift his four-band, three element comical quad into place. Or if anyone has some lightweight non-bendable single line please advise. Heard Ken TGH working cross-band duplex with himself the other afternoon. Or I think that is what he was doing. Kill TWA has ordered a pair of asbestos gloves. Necessary to handle his new pre-snip. They say the surroundings of TMS now speak in a different dialect. The Ploers now it is difficult to dispose through the wind-lashed, comical

Was delighted to welcome Reg TRL and his son to the annual meeting. We thought Reg looked bright and fit after his long convalescence. Best of luck Reg. Also pleased to see Wynyard represented by Harold TMZ who with Dennis TDR, have had the treatment from the pictorial section of the local newspaper nice pictures chaps.

Wonder if any regulations were breached when associate Winston turned up at the meeting in a pair of the firm's overalls. Good plus for t.v. though. David TDA was absent with leave. Understand he had a sked with Maid of the Mountains. Could he be a ham twice? Terry TIT was pictured recently in a mainland paper in shorts and pointed hat. Could it be that he was getting up steam for the Scout Jamboree-of-the-Airs? Well chaps, it's back to the rig. See you on the band and here next month. 73. TMX.

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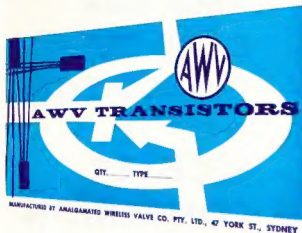
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